

-associated waves and their relation to orographic gravity waves

Low-frequency infrasound observations (0.01-0.1 Hz) of so-called mountain-associated waves (MAWs) were initially reported in the 1970s. Those observations were limited to sets of regional microbarometer arrays. Different theories on the source generation mechanism evolved; however, the atmospheric variability seemed to complicate assessing the exact mechanism. Nowadays, the infrasound network of the International Monitoring System (IMS) allows the detection of MAW events globally. In this study, the Progressive Multi-Channel Correlation algorithm (PMCC) is used for detecting such events, based on up to 15 years of observations. A cross-bearing method is applied to the PMCC results to identify global source regions of MAWs. The significant hotspots are analysed, focusing on the seasonal variability in the detection parameters and both the meteorological source and propagation conditions. Moreover, satellite observations of gravity waves (GWs) reveal similarities between MAW and orographic GW occurrence. Based on these observations, the question is discussed of whether orographic GWs are involved in the source generation of MAWs. If such a link becomes evident, the IMS infrasound network will provide a unique ground-based opportunity for estimating the source regions of orographic GWs globally.

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